

CLAIMS

What is claimed is:

1. A method for locating a position of a feature in a scene, comprising the steps of  
forming an image of the feature using a segmented array having a plurality of array subelements, wherein each of the array subelements has an output signal;  
5 and  
cooperatively analyzing the output signals from at least two spatially adjacent array subelements  
to establish a data set reflective of an extent to which output signals responsive to the image of the feature are produced from exactly one or from  
10 more than one of the adjacent array subelements, and  
to reach a conclusion from the data set as to a location of the image of the feature on the segmented array.
2. The method of claim 1, wherein the step of forming includes the step of  
providing a sensor including  
an optics system that forms the image of the feature of the scene at  
5 an image surface, and  
the segmented array at the image surface upon which the image is formed.
3. The method of claim 2, wherein the step of providing a sensor includes the step of  
providing a one-dimensional segmented array formed of pairs of two adjacent array subelements.
4. The method of claim 3, wherein the step of cooperatively analyzing includes the steps of

- determining whether output signals responsive to the image of the feature are produced by one or both of the two adjacent array subelements, and
- 5 identifying the location of the image of the feature responsive to the step of determining whether output signals responsive to the feature are produced by one or both of the two adjacent array subelements.

5. The method of claim 3, wherein the step of cooperatively analyzing includes the steps of
- determining relative strengths of output signals responsive to the feature produced by the two adjacent array subelements, and
- 5 identifying the location of the image of the feature responsive to the step of determining relative strengths of output signals responsive to the feature.

6. The method of claim 1, wherein the step of providing a sensor includes the step of
- providing a one-dimensional segmented array having spatially overlapping array subelements.

7. The method of claim 1, wherein the step of providing a sensor includes the step of
- providing a one-dimensional segmented array having non-spatially overlapping array subelements.

8. The method of claim 1, wherein the step of providing a sensor includes the step of
- providing a two-dimensional segmented array.

9. The method of claim 1, wherein the step of providing a sensor includes the step of
- providing a two-dimensional segmented array formed of a pattern of intersecting array subelements.

10. The method of claim 9, wherein the step of cooperatively analyzing includes the steps of

determining whether output signals responsive to the image of the feature are produced in single ones or combinations of the intersecting array subelements,  
5 and

identifying the location of the image of the feature responsive to a distribution of the output signals from the step of determining whether output signals responsive to the image of the feature are produced in the intersecting array subelements.

11. The method of claim 9, wherein the step of cooperatively analyzing includes the steps of

determining the relative strengths of the output signals responsive to the image of the feature that are produced in combinations of the intersecting array  
5 subelements, and

identifying the location of the image of the feature responsive to the relative strengths of the output signals from the step of determining the relative strengths of the output signals responsive to the image of the feature that are produced in combinations of the intersecting array subelements.

12. The method of claim 1, wherein the step of providing a sensor includes the step of

providing a two-dimensional segmented array formed of a pattern of square array subelements, wherein four of the square array subelements meet  
5 at an intersection point, and wherein the step of forming an image includes the step of

forming the image having a diameter of one blur diameter.

13. A method for locating a position of a feature in a scene, comprising the steps of

forming an image of the feature using a segmented light-detector array having a plurality of light-detector subelements, wherein each of the light-detector

5 subelements has an output signal; and  
cooperatively analyzing the output signals from at least two spatially  
adjacent light-detector subelements  
to establish a data set reflective of an extent to which output signals  
responsive to the image of the feature are produced from exactly one or from  
10 more than one of the adjacent light-detector subelements, and  
to reach a conclusion from the data set as to a location of the image  
of the feature on the segmented light-detector array.

14. The method of claim 13, wherein the step of forming includes the  
step of  
providing a sensor including  
an optics system that forms the image of the feature of the scene at  
5 an image surface, and  
the segmented light-detector array at the image surface upon which  
the image is formed.

15. The method of claim 14, wherein the step of providing a sensor  
includes the step of  
providing a one-dimensional segmented light-detector array formed  
of pairs of two adjacent light-detector subelements.

16. The method of claim 15, wherein the step of cooperatively  
analyzing includes the steps of  
determining whether output signals responsive to the image of the feature  
are produced by one or both of the two adjacent light-detector subelements, and  
5 identifying the location of the image of the feature responsive to the step  
of determining whether output signals responsive to the feature are produced by  
one or both of the two adjacent light-detector subelements.

17. The method of claim 15, wherein the step of cooperatively  
analyzing includes the steps of

determining relative strengths of output signals responsive to the feature produced by the two adjacent light-detector subelements, and

- 5 identifying the location of the image of the feature responsive to the step of determining relative strengths of output signals responsive to the feature.

18. The method of claim 13, wherein the step of providing a sensor includes the step of

providing a one-dimensional segmented light-detector array having spatially overlapping light-detector subelements.

19. The method of claim 13, wherein the step of providing a sensor includes the step of

providing a one-dimensional segmented light-detector array having non-spatially overlapping light-detector subelements.

20. The method of claim 13, wherein the step of providing a sensor includes the step of

providing a two-dimensional segmented light-detector array.

21. The method of claim 13, wherein the step of providing a sensor includes the step of

providing a two-dimensional segmented light-detector array formed of a pattern of intersecting light-detector subelements.

22. The method of claim 21, wherein the step of cooperatively analyzing includes the steps of

- 5 determining whether output signals responsive to the image of the feature are produced in single ones or combinations of the intersecting light-detector subelements, and

identifying the location of the image of the feature responsive to a distribution of the output signals from the step of determining whether output signals responsive to the image of the feature are produced in the intersecting

light-detector subelements.

23. The method of claim 21, wherein the step of cooperatively analyzing includes the steps of

5 determining the relative strengths of the output signals responsive to the image of the feature that are produced in combinations of the intersecting light-detector subelements, and

identifying the location of the image of the feature responsive to the relative strengths of the output signals from the step of determining the relative strengths of the output signals responsive to the image of the feature that are produced in combinations of the intersecting light-detector subelements.

24. A method for locating a position of a feature in a scene, comprising the steps of

5 forming an image having a diameter of about one blur diameter of the feature using a two-dimensional segmented array having a plurality of square array subelements, wherein four of the square array subelements meet at an intersection point, and wherein each of the array subelements has an output signal; and

10 cooperatively analyzing the output signals from at least two spatially adjacent array subelements

to establish a data set reflective of an extent to which output signals responsive to the image of the feature are produced from exactly one or from more than one of the adjacent array subelements, and

to reach a conclusion from the data set as to a location of the image of the feature on the segmented array.